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Attorney Docket No. IMMR-019/02US

PATENT



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of **Louis B. Rosenberg et al.**

Serial No.: 09/992,123

Examiner: Paul A. BELL

Confirmation No.: 1417

Art Unit: 2675

Filed: November 13, 2001

For: **FORCE FEEDBACK APPLICATIONS BASED ON CURSOR  
ENGAGEMENT WITH GRAPHICAL TARGETS**

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Enclosed is an Information Disclosure Statement and accompanying Form PTO/SB/08A for the above-identified patent application.

- ☒ In accordance with 37 C.F.R. §1.97(b), no additional fee for submission of the IDS is required.
- ☐ In accordance with 37 C.F.R. §1.97(c), also enclosed is:
  - ☐ the fee of \$180.00 as set forth in 37 C.F.R. §1.17(p); or
  - ☐ a statement as specified in 37 C.F.R. §1.97(e).
- ☐ In accordance with 37 C.F.R. §1.97(d), a statement as specified in 37 C.F.R. § 1.97(e) and the fee of \$180.00 as set forth in 37 C.F.R. §1.17(p) are also enclosed.
- ☐ Check No. \_\_\_\_ in the amount of \$\_\_\_\_ for the total fee is attached.
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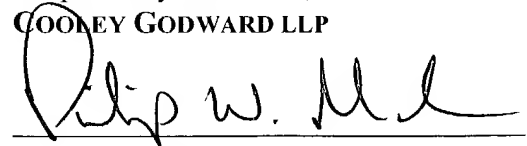
The Commissioner is hereby authorized to charge any appropriate fees under 37 C.F.R. §§1.16, 1.17, and 1.21 that may be required by this paper, and to credit any overpayment, to Deposit Account No. 50-1283.

Dated: June 24, 2004

Cooley Godward LLP  
ATTN: Patent Group  
One Freedom Square  
Reston Town Center  
11951 Freedom Drive  
Reston, VA 20190-5656  
Tel: (703) 456-8000  
Fax: (703) 456-8100

Respectfully submitted,  
**COOLEY GODWARD LLP**

By:

  
Philip W. Marsh  
Reg. No. 46,061



Attorney Docket No. IMMR-019/02US

PATENT

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UNDER 37 C.F.R. §1.97(b)**

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In accordance with the duty of disclosure set forth in 37 C.F.R. §1.56, Applicant(s)  
hereby submits the following information in conformance with 37 C.F.R. §§1.97 and 1.98.

- ☒ Pursuant to 37 C.F.R. §1.98, a copy of each document cited in the *first* attached Form PTO/SB/08 (1 of 2) is included in electronic format on the enclosed CD-ROM.
- ☒ No copies of the publications listed on the *second* attached Form PTO/SB/08A (2 of 2) are being provided pursuant to 37 C.F.R. §1.98(d) because the publications were previously cited by or submitted to the Office in prior Application Serial No. 09/590,856, now U.S. Patent No. 6,317,116, Application Serial No. 08/879,296, now U.S. Patent No. 6,078,308, Application Serial No. 08/571,606, now U.S. Patent No. 6,219,032, or Application Serial No. 08/756,745, now U.S. Patent No. 5,825,308 to which the above-identified application claims priority under 35 U.S.C. §120.
- ☐ No copies of any U.S. patents or U.S. patent application publications listed on the attached Form PTO/SB/08A are being provided pursuant to 37 C.F.R. §1.98 because this application was filed after June 30, 2003.
- ☐ Publication(s) \_\_\_ listed on the attached Form PTO/SB/08A were cited in a foreign search or examination report corresponding to \_\_\_ application serial no. and mailed on \_\_\_.
- ☐ Enclosed is a copy of a non-English publication(s) \_\_\_. Pursuant to §609 of the M.P.E.P., Applicant submits the attached foreign search or examination report, which cites such non-English language publication(s).

- ☐ Enclosed is a copy of a non-English publication(s) \_\_\_\_\_. English language publication \_\_\_\_ (copy enclosed) claims priority from this non-English publication.
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- ☐ Enclosed is an English translation of non-English publication(s) \_\_\_\_\_ cited in the attached Form PTO/SB/08A.
- ☐ Enclosed is a copy of pending patent Application Serial No. \_\_\_\_\_.

This Information Disclosure Statement is filed within any one of the following time periods:

- ☐ within three months from the filing date of this national application other than a CPA under 37 C.F.R. § 1.53(d);
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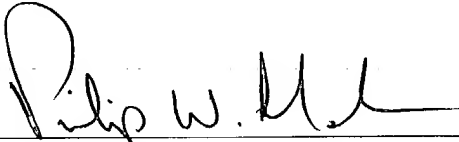
It is respectfully requested that the Examiner consider the above-noted information and return an initialed copy of the attached Form PTO/SB/08A to the undersigned.

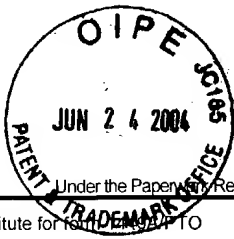
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Reston, VA 20190-5656  
Tel: (703) 456-8000  
Fax: (703) 456-8100

Respectfully submitted,  
COOLEY GODWARD LLP

By:

  
Philip W. Marsh  
Reg. No. 46,061



(1 of 2)

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**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

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Sheet **1** of **3****Complete if Known**

Application Number	09/992,123
Filing Date	November 13, 2001
First Named Inventor	Louis B. Rosenberg
Art Unit	2675
Examiner Name	Paul A. Bell
Attorney Docket Number	IMMR019/02US

U.S. PATENT DOCUMENTS					
Examiner	Cite No. <sup>1</sup>	Document Number Number Kind Code <sup>2</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		6,422,941	7/23/2002	Thorner et al.	
		6,160,489	12/12/2000	Perry et al.	
		6,111,577	8/29/2000	Zilles et al.	
		5,690,582	11/25/1997	Ulrich et al.	
		5,575,761	11/19/1996	Hajianpour	
		5,437,607	8/1/1995	Taylor	
		5,436,622	7/25/1995	Gutman et al.	
		5,283,970	2/8/1994	Aigner	
		5,186,695	2/16/1993	Mangseth et al.	
		5,175,459	12/29/1992	Danial et al.	
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		5,022,384	6/11/1991	Freels	
		4,885,565	12/5/1989	Embach	
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		4,464,117	8/7/1984	Foerst	
		4,333,070	6/1/1982	Barnes	
		4,262,549	4/21/1981	Schwellenbach	
		4,127,752	11/28/1978	Lowthorp	
		2,972,140	2/14/1961	Hirsch	

Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document			Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Country Code <sup>3</sup>	Number <sup>4</sup>	Kind Code <sup>5</sup> (if known)			
		JP	H2-185278		7/19/1990	Taito Corporation	
		JP	H4-8381		1/13/1992	Epoch Co. and Key- Planning Co.	
		JP	H7-24147		1/27/1995	Sega Corporation	
		JP	H5-192449		8/3/1993	Taito Corporation	

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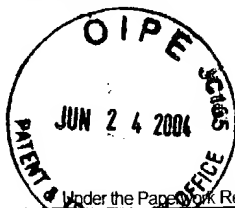
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<sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> Kind Codes of U.S. Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

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## INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet **2** of **3**

### Complete if Known

Application Number	09/992,123
Filing Date	November 13, 2001
First Named Inventor	Louis B. Rosenberg
Art Unit	2675
Examiner Name	Paul A. Bell
Attorney Docket Number	IMMR019/02US

### OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS

Examiner Initials *	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.
		PATRICK, "Design, Construction, and Testing of a Fingertip Tactile Display for Interaction with Virtual and Remote Environments," <i>Master of Science Thesis</i> , MIT, Aug. 1990, archived Nov. 8, 1990.
		CALDER, "Design of A Force-Feedback Touch-Introducing Actuator For Teleoperator Robot Control," <i>Bachelor of Science Thesis</i> , MIT, May 1983, archived June 23, 1983.
		WIKER, "Teletouch Display Development: Phase 1 Report," <i>Technical Report 1230</i> , Naval Ocean Systems Center, San Diego, July 1988.
		BLISS, "Optical-to-Tactile Image Conversion for the Blind," <i>IEEE Transactions on Man-Machine Systems</i> , Vol. MMS-11, No. 1, March 1970.
		JOHNSON, "Shape-Memory Alloy Tactile Feedback Actuator," <i>Armstrong Aerospace Medical Research Laboratory</i> , AAMRL-TR-90-039, August, 1990.
		KONTARINIS et al., "Tactile Display of Vibratory Information in Teleoperation and Virtual Environments," <i>PRESENCE</i> , 4(4):387-402, Harvard Univ., 1995.
		AUKSTAKALNIS et al., "Silicon Mirage: The Art and Science of Virtual Reality," ISBN 0-938151-82-7, pp. 129-180, 1992.
		EBERHARDT et al., "Inducing Dynamic Haptic Perception by The Hand: System Description and Some Results," <i>DSC-Vol. 55-1, Dynamic Systems and Control: Volume 1</i> , ASME 1994.
		GOBEL et al., "Tactile Feedback Applied to Computer Mice," <i>International Journal of Human-Computer Interaction</i> , Vol. 7, No. 1, pp. 1-24, 1995.
		PIMENTEL et al., "Virtual Reality: through the new looking glass," 2 <sup>nd</sup> Edition; McGraw-Hill, ISBN 0-07-050167-X, pp. 41-202, 1994.
		"Cyberman Technical Specification," <i>Logitech Cyberman SWIFT Supplement to Logitech Mouse Technical Reference and Programming Guide</i> , 4/5/1994.
		OUHYOUNG et al., "The Development of A Low-Cost Force Feedback Joystick and Its Use in the Virtual Reality Environment," <i>Proceedings of the Third Pacific Conference on Computer Graphics and Applications, Pacific Graphics '95</i> , Seoul, Korea, 21-24 August 1995.
		KACZMAREK et al., "Tactile Displays," <i>Virtual Environment Technologies</i> , Chap. 9, pp. 349-414.
		LAKE, "Cyberman from Logitech," at <a href="http://www.ibiblio.org/GameBytes/issue21/greviews/cyberman.html">http://www.ibiblio.org/GameBytes/issue21/greviews/cyberman.html</a> , 1994.
		"Component Maintenance Manual With Illustrated Parts List, Coaxial Control Shaker Part no. C-25502," Safe Flight Instrument Corporation, Revised 28 January 2002 (3 pages).

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Signature

Date  
Considered

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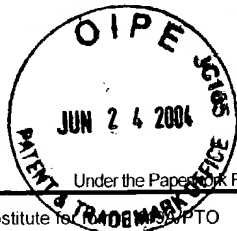
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Sheet **3** of **3**

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Art Unit	2675
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		"Technical Manual Overhaul Instructions With Parts Breakdown, Coaxial Control Shaker Part no. C-25502," Safe Flight Instrument Corporation, Revised 15 July 1980 (23 pages).
		SCANNELL, "Taking a Joystick Ride," <i>Computer Currents</i> , Boston Edition, Vol. 9, No. 11, November 1994
		YAMAKITA et al., "Tele-Virtual Reality of Dynamic Mechanical Model," <i>Proceedings of the 1992 IEEE/RSJ International Conference on Intelligent Robots and Systems</i> , Raleigh, NC, July 7-10, 1992
		NOLL, "Man-Machine Tactile," <i>SID Journal</i> , July/August 1972 Issue.
		ROSENBERG, "Virtual Fixtures: Perceptual Overlays Enhance Operator Performance In Telepresence Tasks," <i>Ph.D. Dissertation</i> , Stanford University, June 1994.

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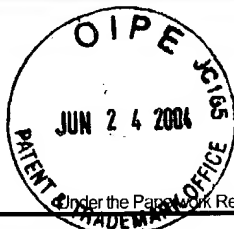
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## INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet **1** of **13**

### Complete if Known

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		6,131,097	10/2000	Peurach et al.	
		6,111,577	08/2000	Downs et al.	
		6,111,562	08/2000	Tarr et al.	
		6,088,019	07/2000	Rosenberg	
		6,084,587	07/2000	Rosenberg et al.	
		6,078,308	06/2000	Rosenberg et al.	
		6,061,004	05/2000	Rosenberg	
		6,057,828	05/2000	Rosenberg et al.	
		6,028,593	02/2000	Rosenberg et al.	
		6,020,876	02/2000	Rosenberg et al.	
		5,990,869	11/1999	Kubica et al.	
		5,959,613	09/1999	Rosenberg et al.	
		5,956,484	09/1999	Rosenberg et al.	
		5,914,716	06/1999	Rubin et al.	
		5,889,670	03/1999	Schuler et al.	
		5,877,748	03/1999	Redlich	
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		5,825,308	10/1998	Rosenberg	
		5,818,423	10/1998	Pugliese et al.	
		5,808,601	09/1998	Leah et al.	
		5,805,165	09/1998	Thorne, III et al.	
		5,805,140	09/1998	Rosenberg et al.	
		5,802,353	09/1998	Avila et al.	
		5,790,108	08/1998	Salcudean et al.	
		5,786,818	07/1998	Brewer et al.	
		5,784,052	07/1998	Keyson	
		5,781,172	07/1998	Engel et al.	
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		5,757,358	05/1998	Osga	
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		5,754,023	05/1998	Roston et al.	
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		5,742,278	04/1998	Chen et al.	
		5,739,811	04/1998	Rosenberg et al.	
		5,736,978	04/1998	Hasser et al.	

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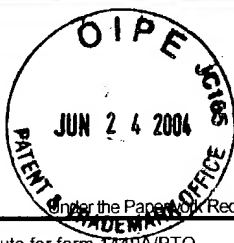
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		5,734,373	03/1998	Rosenberg et al.	
		5,731,804	03/1998	Rosenberg	
		5,721,566	02/1998	Rosenberg et al.	
		5,709,219	01/1998	Chen et al.	
		5,694,013	12/1997	Stewart et al.	
		5,691,898	11/1997	Rosenberg	
		5,691,747	11/1997	Amano	
		5,666,473	09/1997	Wallace	
		5,666,138	09/1997	Culver	
		5,643,087	07/1997	Marcus et al.	
		5,642,469	06/1997	Hannaford et al.	
		5,631,861	05/1997	Kramer	
		5,629,594	05/1997	Jacobus et al.	
		5,625,576	04/1997	Massie et al.	
		5,623,642	04/1997	Katz et al.	
		5,623,582	04/1997	Rosenberg	
		5,619,180	04/1997	Massimino et al.	
		5,596,347	01/1997	Robertson et al.	
		5,591,924	01/1997	Hilton	
		5,589,854	06/1995	Tsai	
		5,589,828	12/1996	Armstrong	
		5,587,937	12/1996	Massie et al.	
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		5,491,477	02/1996	Clark et al.	
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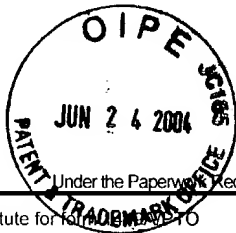
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## INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Sheet **3** of **13**

### Complete if Known

Application Number	09/992,123
Filing Date	November 13, 2001
First Named Inventor	Louis B. Rosenberg
Art Unit	2675
Examiner Name	Paul A. Bell
Attorney Docket Number	IMMR019/02US

### U.S. PATENT DOCUMENTS

Examiner	Cite No. <sup>1</sup>	Document Number Number Kind Code <sup>2</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		5,471,571	11/1995	Smith et al.	
		5,467,763	11/1995	McMahon et al.	
		5,459,382	10/1995	Jacobus et al.	
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		5,298,890	03/1994	Kanamaru et al.	
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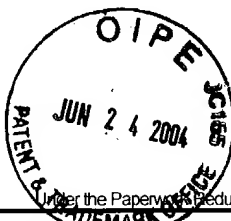
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Substitute for form 1449A PTO

## INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Sheet **4** of **13**

### Complete if Known

Application Number	09/992,123
Filing Date	November 13, 2001
First Named Inventor	Louis B. Rosenberg
Art Unit	2675
Examiner Name	Paul A. Bell
Attorney Docket Number	IMMR019/02US

U.S. PATENT DOCUMENTS					
Examiner	Cite No. <sup>1</sup>	Document Number Number Kind Code <sup>2</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		5,264,768	11/1993	Gregory	
		5,262,777	11/1993	Low et al.	
		5,259,894	11/1993	Sampson	
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		5,220,260	06/1993	Schuler	
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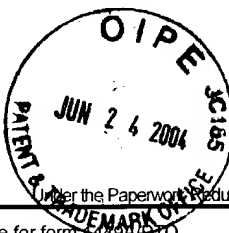
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## INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet **5** of **13**

### Complete if Known

Application Number	09/992,123
Filing Date	November 13, 2001
First Named Inventor	Louis B. Rosenberg
Art Unit	2675
Examiner Name	Paul A. Bell
Attorney Docket Number	IMMR019/02US

U.S. PATENT DOCUMENTS					
Examiner	Cite No. <sup>1</sup>	Document Number Number Kind Code <sup>2</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		5,107,080	04/1992	Rosen	
		5,103,404	04/1992	McIntosh	
		5,095,303	03/1992	Clark et al.	
		5,088,055	02/1992	Oyama	
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**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

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Sheet 6 of 13

**Complete if Known**

Application Number	09/992,123
Filing Date	November 13, 2001
First Named Inventor	Louis B. Rosenberg
Art Unit	2675
Examiner Name	Paul A. Bell
Attorney Docket Number	IMMR019/02US

U.S. PATENT DOCUMENTS					
Examiner	Cite No. <sup>1</sup>	Document Number Number Kind Code <sup>2</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		4,791,934	12/1988	Brunnett	
		4,787,051	11/1988	Olson	
		4,782,327	11/1988	Kley et al.	
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		4,769,763	09/1988	Trieb et al.	
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		4,604,016	08/1986	Joyce	
		4,601,206	07/1986	Watson	
		4,593,470	06/1986	Davies	
		4,571,834	02/1986	Fraser et al.	
		4,550,617	11/1985	Fraignier et al.	
		4,550,221	10/1985	Mabusth	
		4,477,973	10/1984	Davies	
		4,477,043	10/1984	Repperger	
		4,448,083	05/1984	Hayashi	
		4,398,889	08/1983	Lam	
		4,216,467	08/1980	Colston	
		4,148,014	04/1979	Burson	
		4,125,800	11/1978	Eaton	
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		3,944,798	03/1976	Eaton	
		3,919,691	11/1975	Noll	
		3,890,958	06/1975	Fister et al.	
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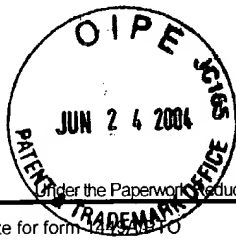
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## INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet 7 of 13

### Complete if Known

Application Number	09/992,123
Filing Date	November 13, 2001
First Named Inventor	Louis B. Rosenberg
Art Unit	2675
Examiner Name	Paul A. Bell
Attorney Docket Number	IMMR019/02US

### U.S. PATENT DOCUMENTS

Examiner	Cite No. <sup>1</sup>	Document Number Number Kind Code <sup>2</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		3,490,059	01/1970	Paulsen et al.	
		2,906,179	09/1959	Bower	

Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document			Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Country Code <sup>3</sup>	Number <sup>4</sup>	Kind Code <sup>5</sup> (if known)			
		WO	9502233		01/1995		
		WO	9532459		11/1995		
		WO	9642078		12/1996		
		WO	9200559		01/1992		
		WO	026634A2		11/1994		
		WO	9502801		01/1995		
		WO	9520787		08/1995		
		WO	9520788		08/1995		
		WO	9616397		05/1996		
		WO	9622591		07/1996		
		WO	9628777		09/1996		
		WO	9720305		06/1997		
		WO	9712357		04/1997		
		WO	9719440		05/1997		
		WO	9731333		08/1997		
		JP	4-34610		02/1992		
		GB	2254911A		10/1992		
		EP	0265011 A1		04/1988		
		EP	0607580 A1		07/1994		

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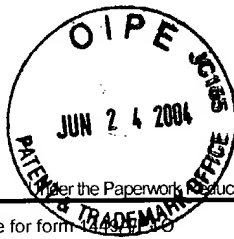
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<sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> Kind Codes of U.S. Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

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## INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet 8 of 13

### Complete if Known

Application Number	09/992,123
Filing Date	November 13, 2001
First Named Inventor	Louis B. Rosenberg
Art Unit	2675
Examiner Name	Paul A. Bell
Attorney Docket Number	IMMR019/02US

### OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS

Examiner Initials *	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.
		"Foot-Operated Mouse," IBM Technical Disclosure Bulletin, Apr. 1986, vol. 28, No. 11.
		"High Performance Model of the Immersion Probe," Immersion-Probe-MD™, Immersion Human Interface Corporation.
		"Proceedings of the IFIP Congress 65," International Federation for Information Processing, Information Processing 1965, vol. 3, New York, May 24-29, pp. 506.
		"The Personal Digitizer™," Immersion Human Interface Corporation 1994.
		"Useful Technology for Your Idea File," Design News, Mar. 7 1994, pp. 63.
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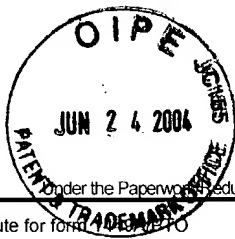
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Sheet **9** of **13**

### Complete if Known

Application Number	09/992,123
Filing Date	November 13, 2001
First Named Inventor	Louis B. Rosenberg
Art Unit	2675
Examiner Name	Paul A. Bell
Attorney Docket Number	IMMR019/02US

### OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS

Examiner Initials *	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.
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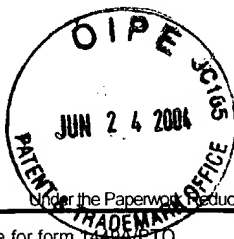
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Sheet 10 of 13

### Complete if Known

Application Number	09/992,123
Filing Date	November 13, 2001
First Named Inventor	Louis B. Rosenberg
Art Unit	2675
Examiner Name	Paul A. Bell
Attorney Docket Number	IMMR019/02US

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		IWATA, H. "Artificial Reality with Force-feedback: Development of Desktop Virtual Space with Compact Master Manipulator", Computer Graphics, vol. 24, No. 4, Aug. 1990, pp. 165-170.
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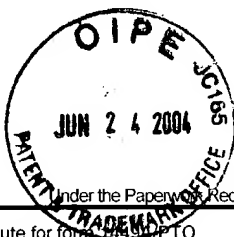
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Application Number	09/992,123
Filing Date	November 13, 2001
First Named Inventor	Louis B. Rosenberg
Art Unit	2675
Examiner Name	Paul A. Bell
Attorney Docket Number	IMMR019/02US

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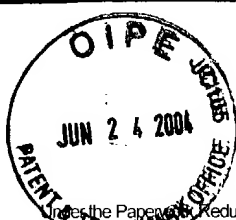
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Application Number	09/992,123
Filing Date	November 13, 2001
First Named Inventor	Louis B. Rosenberg
Art Unit	2675
Examiner Name	Paul A. Bell
Attorney Docket Number	IMMR019/02US

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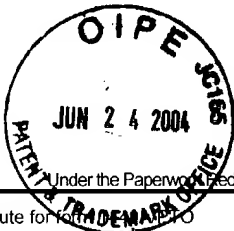
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		WINEY III, C., "Computer Simulated Visual and Tactile Feedback As An Aid to Manipulator and Vehicle Control", MIT, 1981, pp. 1-80.
		YAMAKITA, M. ET AL., Tele-Virtual Reality of Dynamic Mechanical Model, IEEE Jul. 7-10, 1992, pp. 1103-1110.
		YOKOKOHI ET AL., "What You Can See is What You Can Feel -Development of a Visual/Haptic Interface to Virtual Environment", Proceedings of VRAIS '96, IEEE 1996, pp. 46-54.

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